## **ABSTRACT**

Buffered assay solutions for performing 1) binding or 2) functional assays on GPCR arrays, along with methods for their use are described. The buffered assay solution has an underlying composition having: a buffer reagent with a pH in the range of about 6.5 to about 7.9; an inorganic salt of either a monovalent or divalent species, at a concentration from about 1 mM to about 500 mM; and optionally a combination of: c) a blocker reagent at a concentration of about 0.01 wt.% to about 2 wt.% of the composition, or d) protease-inhibitor at a concentration of about 0.001 mM to about 100 mM. In an embodiment for functional assay uses, the composition is modified to also include a GTP-analogue, a guanosine 5'-diphosphate (GDP) salt, and/or an anti-oxidant reagent.